Bossier Parish Community College
Master Syllabus

Course Prefix and Number: PHSC 105 **Credit Hours:** 3

Course Title: Elemental Physics

Course Prerequisites: MATH 099 or ACT math score of 18 or higher

Textbook: Tillery, Physical Science-Physics, 8th edition

Course Description:

An introductory physics course, which includes basic concepts in motion, gravitation, energy transformation, heat, waves, sound, and electricity. Graphic and algebraic solutions in problem solving are emphasized.

Learning Outcomes:

At the end of this course, the student will

A. utilize mathematical skills to perform measurements, analyze relationships, and express quantitative values in physics;
B. apply Newton's three laws to explain the behavior of objects in motion;
C. utilize concepts of work and energy to appreciate the relationship between the different forms of energy and power;
D. apply the concepts of heat energy to explain the effects of temperature change;
E. apply the concept of sound energy to explain the differences in sound waves; and
F. utilize the concepts of electrical energy to understand and predict the behavior of electricity.

To achieve the learning outcomes, the student will

1. determine the number of significant figures in a measurement. (A)
2. make conversions between various units of measurement. (A)
3. determine direct, inverse, direct square and indirect squared relationships between variables. (A)
4. exhibit a problem solving method. (A)
5. explain motion and the forces that cause motion. (A,B)
6. calculate speed, acceleration, and velocity. (A,B)
7. make calculations related to falling objects. (A,B)
8. explain projectile motion and how forces are related to this motion. (B)
9. recognize examples of each of Newton's Three Laws of Motion. (B)
10. recall the units of force, acceleration, speed, and momentum. (B)
11. explain the difference between linear acceleration, centripetal force, and gravitational force. (B)

12. recognize the relationships between weight, force, and mass. (B)
13. calculate the amount of work done on an object. (A,C)
14. calculate the amount of power exerted on an object. (A,B)
15. distinguish the difference between work and power. (C)
16. identify the different types of energy. (C)
17. calculate kinetic and potential energy of an object. (A,C)
18. describe the relationship between work and energy. (C)
19. describe the kinetic molecular theory. (D)
20. describe the different unit types of temperature and be able to convert from one unit to another. (A,D)
21. distinguish the difference between temperature and heat. (D)
22. perform calculations related to heat. (A,D)
23. describe the different methods of heat transfer. (D)
24. perform calculations related to phase changes of matter. (A,D)
25. recognize the Law's of Thermodynamics. (D)
26. recognize the kinds of waves and their parts. (E)
27. distinguish the relationship between sound waves and their parts. (E)
28. calculate the speed of sound in air. (A, E)
29. recognize the terms related to wave interaction. (E)
30. make calculations of frequency, wavelength, or speed of a wave. (A,E)
31. relate music to sound waves. (E)
32. explain the Doppler effect as it is related to sound waves. (E)
33. distinguish electrical charges and how they are measured. (A, F)
34. recognize the different types of electrical current and electrical circuits. (F)
35. make calculations related to Ohm's law. (A,F)
36. make calculations related to electrical work. (A,F)
37. recognize the terms related to electricity. (F)

Course Requirements

- minimum average of 50% on mathematic application questions on chapter tests
- minimum average of 60% on terminology/concept questions on chapter tests
- minimum 75% correct homework
- minimum 50% on comprehensive final test

Course Grading Scale

A- 90% or more of total possible points, a minimum average of 50% on mathematical applications on chapter tests, a minimum average of 60% on terminology/ concept questions on chapter tests, minimum of 50% on the comprehensive final exam and a minimum of 75% credit on homework

B- 80% or more of total possible points, a minimum average of 50% on mathematical applications on chapter tests, a minimum average of 60% on

terminology/ concept questions on chapter tests, minimum of 50% on the comprehensive final exam and a minimum of 75% credit on homework

C- 70% or more of total possible points, a minimum average of 50% on mathematical applications on chapter tests, a minimum average of 60% on terminology/ concept questions on chapter tests, minimum of 50% on the comprehensive final exam and a minimum of 75% credit on homework

D- 60% or more of total possible points, a minimum average of 50% on mathematical applications on chapter tests, a minimum average of 60% on terminology/ concept questions on chapter tests, minimum of 50% on the comprehensive final exam and a minimum of 75% credit on homework

F- less than 60% of total possible points, or less than a minimum average of 50% on mathematical applications on chapter tests, or less than a minimum average of 60% on terminology/ concept questions on chapter tests, or less than a minimum of 50% on the comprehensive final exam or less than a minimum of 75% credit on homework

Reviewed by R. Jones / May 2009